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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,930	09/25/2003	Shiyu Li	44908-00005 USP1	2058

7590 07/08/2005

Alan R. Thiele
JENKENS & GILCHRIST
3200 Fountain Place
1445 Ross Avenue
Dallas, TX 75202-2799

EXAMINER

HAAS, WENDY C

ART UNIT	PAPER NUMBER
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1661

DATE MAILED: 07/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/670,930

Applicant(s)

LI, SHIYOU

Examiner

Wendy C. Haas

Art Unit

1661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Prosecution Application

The request filed on 9/25/2003 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/696,042 is acceptable and a CPA has been established. An action on the CPA follows.

Priority

Applicant claims priority to case serial number 09/696,042, which claims priority to provisional application number 60/161,460, filed 25 October 1999. The instant application is afforded the benefit of this earlier filed application. Applicant also claims priority to PCT/US01/50941, filed 23 October 2001. The earliest priority date the application is entitled to is 25 October 1999.

Information Disclosure Statement

No new Information Disclosure Statement was filed with the present case. There are information disclosure statements of record in the parent application.

Oath/Declaration

The declaration is acceptable.

Drawings

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the drawings do not comply with the provisions of 37 CFR § 1.84.

Specifically:

37 CFR §1.84(b)(1) states that photographs are not ordinarily permitted in utility applications, and that photographs provided must be of sufficient quality so that all details of same are reproducible in the printed patent. Fig. 3, Fig. 6 and Fig. 11 are photographs. Fig. 3 and Fig. 6 are not of sufficient quality to be reproducible in a printed patent.

37 CFR §1.84(d) requires each chemical formula provided to be a separate Figure. Fig. 1 and Fig. 5 contain multiple chemical formulas.

37 CFR § 1.84(u)(1) requires that all drawings be labeled with --FIG.—and consecutive Arabic numerals.

Applicant is also reminded that **37 CFR § 1.84(o)** requires that legends contain as few words as possible. Further, applicant is reminded to amend the specification accordingly to correspond to any drawing changes made.

Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Specification

The use of the trademarks HYCANTIN, CAMPTOSAR and RUBITECAN have been noted in this application. Each should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Applicant is urged to check the specification for grammatical and spelling errors and to correct same if needed.

Claim Rejections - 35 USC § 112, First Paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 2, 14, 15, 27 and 28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant is enabled only for increasing the production of camptothecin by controlling the amount of auxin produced by the plant. Enablement is considered in view of the Wands factors (MPEP 2164.01(a).

Art Unit: 1661

Nature of the invention. The claims are drawn to methods of increasing the production of camptothecins by a plant comprising the step of physically, biologically or ecologically controlling the amount of hormones produced by the plant.

State of the prior art. At the time the invention was made, it was known that removal of auxin from a plant would increase the production of camptothecin (CPT). This is taught by Vincent et al. (IDS reference C-49.) The effects of control of other hormones produced by the plant (i.e. ABA, cytokinins, ethylene, etc.) on camptothecin production were not known.

Breadth of the claims. The claims are drawn to controlling camptothecin production by controlling hormone amounts.

Working examples. A working example is included for auxin in the specification. Guidance in the specification. The specification provides no specific guidance regarding the effects of controlling other hormones on CPT production.

Predictability of the art. The physiological art in general is acknowledged to be unpredictable. (MPEP 2 164.03). In the instant application, applicants have disclosed a working method for controlling auxin levels only.

Amount of experimentation necessary. Further experimentation to determine which other hormone levels are affected by applicant's method and their particular effect on CPT production is needed.

For the reasons discussed above, it is clear that use of the claimed method for the control of hormone levels other than auxin in a plant in order to influence CPT production would require undue experimentation for one skilled in the art.

Claim Rejections - 35 USC § 112, Second Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 8, 21 and 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, each of the claims states "heading back stems with a crotch angle less than about 30 degrees from the main stem of the plant to about 50 cm. above the ground." Applicant appears to advocate cutting branches that come off of a main leader to a stated point above the ground. Branches that come off a main leader can only be cut back relative to their point of origin, regardless of its relationship to the ground. Correction and / or clarification regarding the intended meaning of these claims is needed.

Claim 42 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the claim recites "... is reduced by extracting freshly harvested matters said young vegetative tissues ..." This portion of the claim makes no grammatical sense, therefore it is unclear what applicant is attempting to claim. Correction and/or clarification is needed.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 4-6, 27-29, 40-43, 46 and 47 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Vincent et al. taken in view of Li et al. (IDS reference # C-1) and Liu (DS reference # C-34).

Vincent et al. teach a method for increased production of camptothecin from *Camptotheca acuminata* by pruning the auxin-producing shoot tips and young leaves of 17 month old *C. acuminata* plants. This pruning process inherently decreases the amount of auxin produced by the plant until re-growth occurs. Applicant notes on page 15 of the specification that glandular (i.e. camptothecin-bearing) trichomes appear in greater densities on young leaves of a *C. acuminata* plant.

Vincent et al. teach that their pruning method increases the amount of young vegetative tissues (i.e. leaf biomass), and thus glandular trichomes on the plant. Vincent et al. also teach freeze-drying the harvested leaves of the pruned plants immediately after they the fresh weight is taken. The fresh weight is taken immediately after harvest. This freeze- drying of the fresh harvested leaves is known in the art to reduce the numbers of trichomes that fall away from the harvested leaves. (See Li et al. which teach that camptothecin (CPT) is stored in the vacuoles of glandular trichomes and that leaves have the highest concentration of CPT in the tree and Liu, which teaches that tissues freeze-dried after harvest retain 27% more CPT.)

Finally, Vincent et al. teach breaking the cell walls of the freeze- dried tissue mechanically and extracting the camptothecins from the tissue with a solvent.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 8, 10-12, 14-19, 21, 23-25, 27-32, 34 and 36-38 are rejected under 35 U.S.C.

103(a) as being unpatentable over Vincent et al. in view of Li et al., Medic (IDS reference # C-531, McKey (IDS reference # C-117), Avery (in Cook, IDS reference # C-52), Bedker et al. (IDS reference # C-51), Purdue (IDS reference # C-441, Liu, Lopez-Myer et al. (IDS reference # C-361 and Bryant et al. (IDS reference # C-78).

The teachings of Vincent et al. are set forth above.

Vincent et al. also teach the advantages of timing pruning at intervals of 6 weeks or greater; removal of apical dominance in order to facilitate increased biomass production; that the specific timing of pruning is important to the overall, long-term success of the camptothecin production cropping system; that is is most effective to leave some older leaf tissues on the plant in order to best induce young leaf production; and the advantages of a renewable leaf harvest system.

Vincent et al. do not teach a method of pruning a plant during the first year using coppice (defined in the art as cutting a woody plant close to the ground), heading cuts, selective heading cuts and watersprout removal in order to increase the production of camptothecin. The terms

Art Unit: 1661

coppice, heading cuts, selective heading cuts and watersprout removal are terms of art describing the specific type of pruning set forth in the claims and most specifically in claims 8, 21 and 34.

Li et al. teach coppicing a *Camptotheca acuminata* plant during its first year (see, e.g. page 78, Figs. 29, 30).

Medic teaches pruning a woody plant using heading cuts, selective heading cuts, and removal of watersprouts.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the methods of Liu et al. and Medic to prune a plant in order to increase the production of camptothecin by the plant. Pruned trees produce more camptothecin.

Li et al. teach that camptothecin is an alkaloid (pg. 10).

McKey teaches that plants tend to respond to wounding by increasing alkaloid concentration in the wound area. Pruning a plant wounds it (see Medic). Therefore, pruning increases the amount of camptothecin produced by the plant.

Pruning a plant by applicant's method will create a bushy plant habit. Medic teaches that the purpose of heading and selective heading cuts, along with watersprout removal is to encourage growth lower on the plant, to make the plant full, and to encourage compact, bushy growth on shrubs. Avery (pg. 56-57) teaches that deciduous trees will resprout into a smaller, bushier form if they are coppiced. Bedker et al. teach that "given enough care and attention, plants can be pruned into nearly any form."

Creating a bushier plant habit creates more leaves. This is inherent, though the fuller growth is noted by Medic, Avery and Bedker et al. above.

Li et al. teach that the leaves of *C. acuminata* have the highest concentration of camptothecin (CPT) of all the parts of the plant.

Purdue teaches that the yield of leaves from *C. acuminata* tends to be very low.

Pruning a plant to achieve a bushy habit is an obvious method to increase CPT production because it increases leaf number, and leaves have a greater concentration of CPT than other plant parts. Creating a bushier plant habit also creates more young leaves. This is also inherent, because more sprouts and more leaves means more young leaves, particularly with repeated pruning and repeated regeneration. This fill-in effect of pruning is noted by Medic.

In addition, Li et al. teach that the leaves of *C. acuminata* are short-lived. Therefore, regeneration of leaves is needed to sustain the plant.

Finally, Liu and Lopez-Myer et al. teach that young leaves of *C. acuminata* have a higher concentration of camptothecin (CPT) than older leaves, and the highest concentration of CPT in the plant. Therefore, pruning a plant to create more young leaves is an obvious means of increasing the production of CPT. Pruning also maintains a juvenile ontogenetic age in a plant. Bryant et al. teach that severe pruning of woody plants causes them to revert to a more juvenile form. Liu teaches that alkaloid concentrations in alkaloid-bearing plants are programmed to decrease as ontogenetic development proceeds. McKey's teachings reflect this decline by noting that alkaloids tend to appear earliest in the youngest, most actively growing tissues. Liu also notes this decline by teaching that leaves of the same age have varying CPT concentrations based on the age of the tissue they develop on, with leaves developing on younger tissues having higher concentrations of CPT.

Art Unit: 1661

For these reasons, it would be obvious to prune a plant by applicant's method to increase CPT production because it creates more juvenile tissue and juvenile tissue creates more CPT, and also because it creates more young leaves (as noted above) on young tissue, and these young leaves growing on young tissues have a notably high CPT concentration.

The motivations for applicant to modify the system of Vincent et al. to incorporate the teaching of Li et al., Medic, McKey, Avery, Bedker et al., Purdue, Liu, Lopez-Myer et al. and Bryant et al. are numerous. Applicant would be motivated to produce a bushier plant habit in order to produce more leaves because leaves produce the most camptothecin (CPT) in the plant and the yield of leaves from *Camptotheca acuminata* is traditionally low. Applicant would be also be motivated to produce a bushier plant because bushier plants produce more young leaves. Young leaves produce more trichomes and thus produce more CPT.

Applicant would also be motivated to prune the plant in order to maintain a younger ontogenetic age of plant tissues. Juvenile tissues produce higher concentrations of CPT. Applicant would also be motivated to optimize the timing of pruning based on the growth rate of the plant and the cultural conditions in the location the method is practiced in, especially by leaving some older leaf tissues on the plant and pruning no more often than once every six weeks, as suggested by Vincent et al., in order to maximize total CPT production and insure continued success of the planting.

Thus, for all of the reasons listed above, the invention as a whole was clearly prima facie obvious to one of ordinary skill in the art at the time the invention was made.

Art Unit: 1661

Claims 7, 20 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vincent et al. in view of Li et al., Medic, McKey, Avery, Bedker et al., Purdue, Liu, Lopez-Myer et al. and Bryant et al., as applied to Claims 1-6, 8, 10-12, 14-19, 21, 23-25, 27-32, 34 and 36-38 above, and further in view of Cook (IDS reference # C-52) and Baldwin (IDS reference # C-73). The teachings of Vincent et al., Li et al., Medic, McKey, Avery, Bedker et al., Purdue, Liu, Lopez-Myer et al. and Bryant et al. are set forth above.

Vincent et al., Li et al., Medic, McKey, Avery, Bedker et al., Purdue, Liu, Lopez-Myer et al. and Bryant et al. do not teach pruning the plant's roots.

Cook teaches that root pruning can be used to keep a shrub in its proper habit, "especially if judicious thinning and heading back of branches are done at the same time".

Baldwin teaches that root stress strongly influences a plant's alkaloidal response to damage (showing that pot bound tobacco plants have no response to induced herbivory but plants with ample root room do respond).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the methods of Vincent et al., Li et al., Medic, McKey, Avery, Bedker et al., Purdue, Liu, Lopez-Myer et al. and Bryant et al. in conjunction with the methods of Cook and Baldwin in order to induce a plant to produce more camptothecin for the reasons stated above.

Applicant would be particularly motivated to do so because it would be desirable to maintain the advantageous shrub-like habit of the pruned plants. A further motivation comes from Baldwin's teaching which suggests that without root pruning, the method may cease to work once a critical mass of roots is reached.

Art Unit: 1661

Thus, the invention as a whole was clearly prima facie obvious to one of ordinary skill in the art at the time the invention was made.

Claims 13 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vincent et al. in view of Li et al., Medic, McKey, Avery, Bedker et al., Purdue, Liu. Lopez-Myer et al. and Bryant et al., as applied to Claims 1-6, 8, 10-12, 14-19, 21, 23-25, 27-32, 34 and 36-38 above and further in view of Baldwin and Baldwin (Oecologia) (IDS reference # C-691.

The teachings of Vincent et al., Li et al., Medic, McKey, Avery, Bedker et al., Purdue, Liu. Lopez- Myer et al. and Bryant et al. are set forth above.

Vincent et al., Li et al., Medic, McKey, Avery, Bedker et al., Purdue, Liu, Lopez-Myer et al. and Bryant et al. do not teach pinching the leaf tip area of a portion of the leaves on the stem 6 to 8 days before harvest.

Baldwin teaches that plant subjected to manual defoliation designed to mimic herbivory (i.e. partial leaf removal) undergo rapid increases in alkaloid production (between 438% and 5,319%) in 8 days.

Baldwin (Oecologia) teaches that how a leaf is damaged is as important as the amount of damage. Leaves produce the greatest increase in secondary metabolites when the veins, interveinal tissues and midrib are all wounded when the leaf is partially pinched off.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the methods of Vincent et al., Li et al., Medic, McKey. Avery. Bedker et al., Purdue. Liu. Lopez-Myer et al., Bryant et al., Baldwin and Baldwin (Oecologia) in order to induce a plant to produce more camptothecin (CPT).

Art Unit: 1661

Applicant would be particularly motivated to use these methods because Baldwin and Baldwin (Oecologia) clearly show that partial leaf damage across the tip will result in dramatically increased secondary metabolite production in 8 days or less. CPT is a secondary metabolite, therefore use of this method would dramatically increase CPT production.

Thus, the invention as a whole was clearly prima facie obvious to one of ordinary skill in the art at the time the invention was made.

Claims 22 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vincent et al. in view of Li et al., Medic, McKey, Avery, Bedker et al., Purdue, Liu, Lopez-Myer et al., Bryant et al., Cook and Baldwin, as applied to Claims 7, 20 and 33 and further in view of Baldwin (Oecologia).

The teachings of Vincent et al., of Li et al., Medic, McKey, Avery, Bedker et al., Purdue, Liu, Lopez-Myer et al., Bryant et al., Cook and Baldwin are set forth above.

Baldwin also teaches that plant subjected to manual defoliation designed to mimic herbivory (i.e. partial leaf removal) undergo rapid increases in alkaloid production (between 438% and 5,319%) in 8 days.

Vincent et al., Li et al., Medic, McKey, Avery, Bedker et al., Purdue, Liu, Lopez-Myer et al., Bryant et al., and Cook do not teach pinching the leaf tip area of a portion of the leaves on the stem 6 to 8 days before harvest.

Baldwin (Oecologia) teaches that how a leaf is damaged is as important as the amount of damage. Leaves produce the greatest increase in secondary metabolites when the veins, interveinal tissues and midrib are all wounded when the leaf is partially pinched off. It would

Art Unit: 1661

have been obvious to one of ordinary skill in the art at the time the invention was made to use the methods of Vincent et al., Li et al., Medic, McKey, Avery, Bedker et al., Purdue, Liu, Lopez-Myer et al., Bryant et al., Cook and Baldwin in order to induce a plant to produce more camptothecin (CPT).

Applicant would be particularly motivated to use these methods because Baldwin and Baldwin (Oecologia) clearly show that partial leaf damage accross the tip will result in dramatically increased secondary metabolite production in 8 days or less. CPT is a secondary metabolite, therefore use of this method would dramatically increase CPT production.

Thus, the invention as a whole was clearly prima facie obvious to one of ordinary skill in the art at the time the invention was made.

Claims 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vincent et al. in view of van Hengel et al..

The teachings of Vincent et al. are set forth above. Vincent et al. do not teach breaking trichome walls using ultrasound.

Van Hengel et al. teach a method of breaking trichome walls of *Camptotheca acuminata* with ultrasound (sonification). Van Hengel et al. also teach that their method recovered high yields of camptothecin, was faster than previously known methods and gives good results.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the method of van Hengel et al. to break trichome cell walls using ultrasound in order to increase the amount of camptothecin harvested from a plant. Van Hengel et al. provide a

Art Unit: 1661

motivation for this combination by noting that their method is effective, fast and gives good results.

Thus, the invention as a whole was clearly prima facie obvious to one of ordinary skill in the art at the time the invention was made.

Claim 43 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vincent et al. in view of Gershenzon et al.

The teachings of Vincent et al. are set forth above. Vincent et al. do not teach breaking trichome walls using a homogenizer.

Gershenzon et al. teach a method of extracting the contents of glandular trichomes of peppermint with a cell homogenizer. Gershenzon et al. also teach that their method recovered high yields of glandular products from large amounts of plant material while minimizing contaminants, and that their method translates well to a wide variety of plant species.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the method of Gershenzon et al. to break trichome cell walls using a homogenizer in order to increase the amount of camptothecin harvested from a plant.

Gershenzon et al. provide a motivation for this combination by noting that their method is effective for recovering a high yield of products and is also easy to use. Thus, the invention as a whole was clearly prima facie obvious to one of ordinary skill in the art at the time the invention was made.

References Cited

The referenced cited are of record in the parent case, serial number 09/696,042.

Art Unit: 1661

Future Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wendy C. Haas whose telephone number is (571) 272-0976. The examiner can normally be reached on Monday through Friday 9:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on (571) 272-0811. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



W. C. Haas
Patent Examiner
Art Unit 1661